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EIC 1700

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STIC Database Tracking Number: 74624

TO: Greg Delcotto **Location: REM 9A39** **Art Unit : 1751** **December 28, 2005** **Case Serial Number: 10/800788**	**From: Usha Shrestha** **Location: EIC 1700** **REMSEN 4B28** **Phone: 571/272-3519** **usha.shrestha@uspto.gov**

Search Notes

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EIC17000

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Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

Access DB# 174624

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: GREG DELCOTTO Examiner #: 72268 Date: 12/17/05
Art Unit: 1751 Phone Number ~~305~~ 571 272-1312 Serial Number: 10/800788
Mail Box and Bldg/Room Location: REMSEN-9A39 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: ORGANIC PEROXYACID PRECURSORS

Inventors (please provide full names): HOBSON ET AL

Earliest Priority Filing Date: 11/6/05

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

*SEE ATTACHED CLAIMS AND BIB SHEET.

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Bib Data Sheet

CONFIRMATION NO. 9204

SERIAL NUMBER	FILING DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/800,788	03/16/2004 RULE	510	1751	031004

APPLICANTS

David W. Hobson, San Antonio, TX;

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** CONTINUING DATA **********

This application is a CIP of 10/752,430 01/06/2004
which claims benefit of 60/438,114 01/06/2003

** FOREIGN APPLICATIONS **********

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 06/03/2004

		STATE OR	SHEETS	TOTAL	INDEPENDENT
Foreign Priority claimed	☐ yes ☐ no	COUNTRY	DRAWING	CLAIMS	CLAIMS
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance	TX	0	62	3
Verified and Acknowledged	Examiner's Signature Initials				

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Christopher J. Whewell
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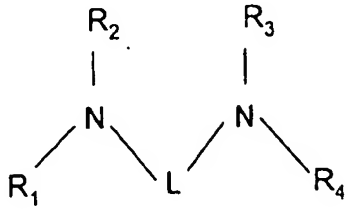
TITLE
Organic peroxyacid precursors

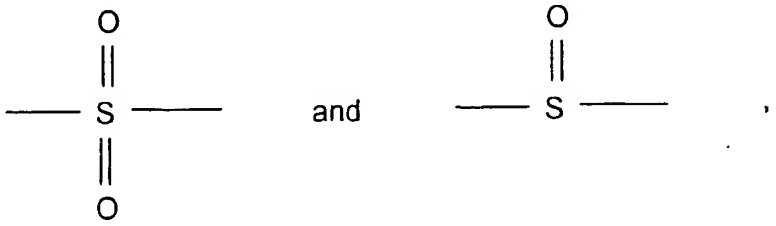
FILING FEE RECEIVED	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time)

What is claimed is:

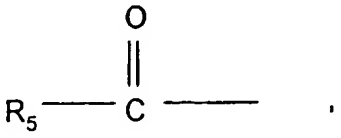
1) A composition of matter useful for forming organic peroxy acids, which comprises a polyamino compound having the structure:



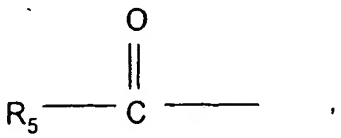
in which L is a divalent radical that is independently selected from the group consisting of:



and wherein R_1, R_2, R_3, and R_4 are each independently selected from the group consisting of: hydrogen, any C_1 to C_{20} hydrocarbyl group, and the group:

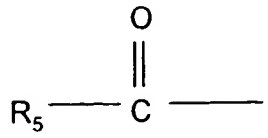


subject to the proviso that: at least one of R_1, R_2, R_3, and R_4 are the group:



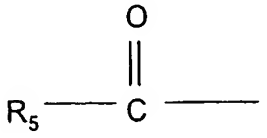
in which R_5 is in each occurrence independently hydrogen or any C_1 to C_{20} hydrocarbyl group.

2) A composition according to claim 1 wherein one and only one of R_1, R_2, R_3, and R_4 is the group:



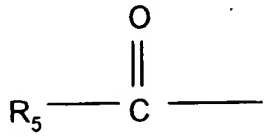
in which R_5 is independently hydrogen or any C_1 to C_{20} hydrocarbyl group.

3) A composition according to claim 2 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



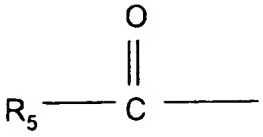
is hydrogen.

4) A composition according to claim 2 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



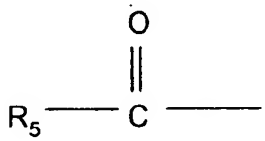
is independently in each occurrence any C_1 to C_{20} hydrocarbyl group.

5) A composition according to claim 1 wherein any two of R_1, R_2, R_3, and R_4 are the group:



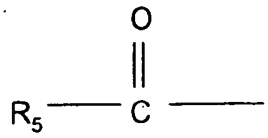
in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

6) A composition according to claim 5 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



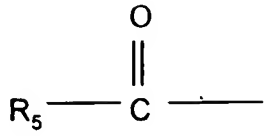
is hydrogen.

7) A composition according to claim 5 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not a group:



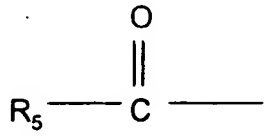
is independently in each occurrence any C_1 to C_{20} hydrocarbyl group.

8) A composition according to claim 1 wherein any three of R_1, R_2, R_3, and R_4 are the group:



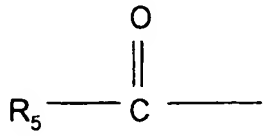
in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

9) A composition according to claim 8 wherein the group of R_1, R_2, R_3, and R_4 which is not a group:



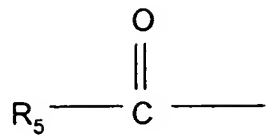
is hydrogen.

10) A composition according to claim 8 wherein the group of R_1, R_2, R_3, and R_4 which is not a group:



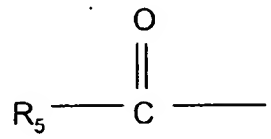
is any C_1 to C_{20} hydrocarbyl group.

11) A composition according to claim 1 wherein all of R_1, R_2, R_3, and R_4 are the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

12) A composition according to claim 1 wherein R_1 and R_4 are represented by the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group, and wherein R_2 and R_3 are each independently selected from the group consisting of: hydrogen, and any C_1 to C_{20} hydrocarbyl group.

13) A composition according to claim 12 wherein R_5 in each occurrence is independently selected from the group consisting of: hydrogen, a methyl, an ethyl, a propyl, and a butyl group.

14) A composition according to claim 1 wherein said composition is a dry powder.

15) A composition of matter according to claim 14 which further comprises at least one solid compound which upon being contacted with water yields a peroxide selected from the group consisting of: hydrogen peroxide and peroxide ions.

16) A composition according to claim 15 wherein said solid compound is a compound selected from the group consisting of: alkali metal salts of a percarbonate, alkaline earth metal salts of a percarbonate, alkali metal salts of a perborate, and alkaline earth metal salts of a perborate.

17) A composition according to claim 15 wherein the total amount of said amino compound in said composition is between about 0.1 % and about 5 % by weight based on the total weight of said composition.

18) A process for providing an aqueous peroxy acid comprising the steps of: contacting a composition according to claim 1 with an aqueous peroxide.

19) A process according to claim 18 wherein said peroxide is selected from the group consisting of: hydrogen peroxide and peroxide ions.

20) An aqueous solution comprising a composition according to claim 1.

21) An aqueous solution according to claim 20 wherein the amount of water present in said aqueous solution is any amount between about 80 % and about 99.95 % by weight based on the total weight of said aqueous solution.

22) A solution according to claim 20 wherein said amino compound is present in any amount between about 0.1 % and about 5 % by weight based upon the total weight of said aqueous solution.

23) A solution according to claim 20 further comprising an aqueous buffer.

24) A solution according to claim 20 further comprising at least one surfactant selected from the group consisting of: anionic surfactants, non-ionic surfactants, and cationic surfactants.

25) A solution according to claim 20 further comprising at least one sequesterant.

26) A composition comprising the aqueous solution of claim 20 and further comprising at least one solid compound which upon being contacted with water yields a peroxide selected from the group consisting of: hydrogen peroxide and peroxide ions.

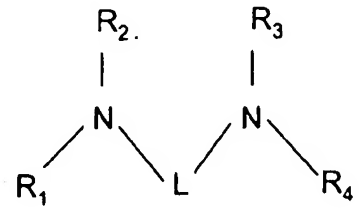
27) A composition according to claim 26 wherein said solid compound is a peroxide-generating compound selected from the group consisting of: alkali metal salts of a percarbonate, alkaline earth metal salts of a percarbonate, alkali metal salts of a

perborate, and alkaline earth metal salts of a perborate, wherein said peroxide-generating compound is present in any amount between about 0.01 % and about 5 % by weight based upon the total weight of said aqueous solution.

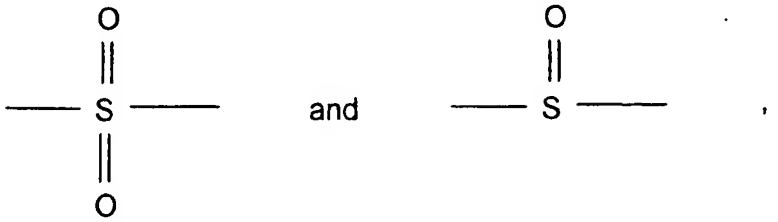
28) A process for disinfecting a surface comprising the steps of contacting said surface with an aqueous composition that is formed from mixing:

a) water;

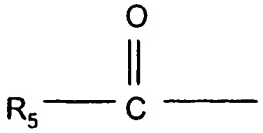
b) a composition of matter which comprises an amino compound having the structure:



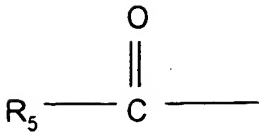
in which L is a divalent radical that is independently selected from the group consisting of:



and wherein R_1, R_2, R_3, and R_4 are each independently selected from the group consisting of: hydrogen, any C_1 to C_{20} hydrocarbyl group, and the group:



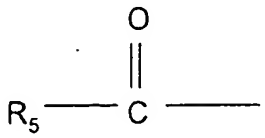
subject to the proviso that: at least one of R_1, R_2, R_3, and R_4 are the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group; and

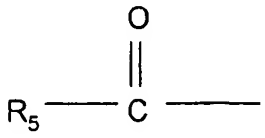
c) a source of peroxide.

29) A process according to claim 28 wherein one and only one of R_1, R_2, R_3, and R_4 is the group:



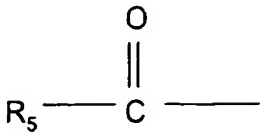
in which R_5 is independently hydrogen or any C_1 to C_{20} hydrocarbyl group.

30) A process according to claim 29 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



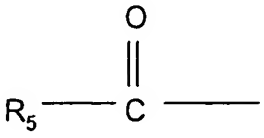
is hydrogen.

31) A process according to claim 29 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



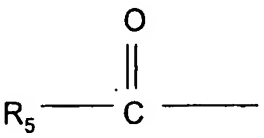
is independently in each occurrence any C_1 to C_{20} hydrocarbyl group.

32) A process according to claim 28 wherein any two of R_1, R_2, R_3, and R_4 are the group:



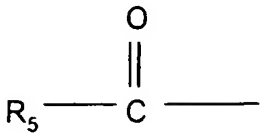
in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

33) A process according to claim 32 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which is not a group:



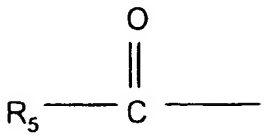
is hydrogen.

34) A process according to claim 32 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which is not a group:



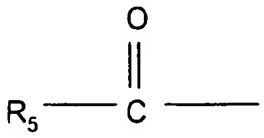
is independently in each occurrence a C_1 to C_{20} hydrocarbyl group.

35) A process according to claim 28 wherein any three of R_1, R_2, R_3, and R_4 are the group:



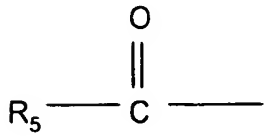
in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

36) A process according to claim 35 wherein the group of R_1, R_2, R_3, and R_4 which is not a group:



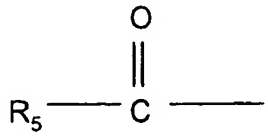
is hydrogen.

37) A process according to claim 35 wherein the group of R_1, R_2, R_3, and R_4 which is not a group:



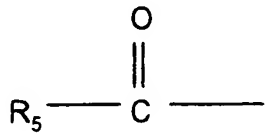
is any C_1 to C_{20} hydrocarbyl group.

38) A process according to claim 28 wherein all of R_1, R_2, R_3, and R_4 are the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

39) A process according to claim 28 wherein R_1 and R_4 are the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group, and wherein R_2 and R_3 are each independently selected from the group consisting of: hydrogen and any C_1 to C_{20} hydrocarbyl group.

40) A process according to claim 39 wherein R_5 in each occurrence is independently selected from the group consisting of: hydrogen, a methyl, an ethyl, a propyl, and a butyl group.

41) A process according to claim 41 wherein said source of peroxide is a solid compound which upon being contacted with water yields a peroxide.

42) A process according to claim 41 wherein said source of peroxide is selected from the group consisting of: alkali metal salts of a percarbonate, alkaline earth metal salts of a percarbonate, alkali metal salts of a perborate, and alkaline earth metal salts of a perborate.

43) A process according to claim 41 wherein said peroxide is selected from the group consisting of: hydrogen peroxide and peroxide ions.

44) A process according to claim 40 wherein said aqueous composition is formed using between about 0.1 % and about 5 % by weight of said amino compound based on the total weight of said composition.

45) A process according to claim 40 wherein said aqueous composition contains between about 0.1 % and about 5 % by weight of water based on the total weight of said composition.

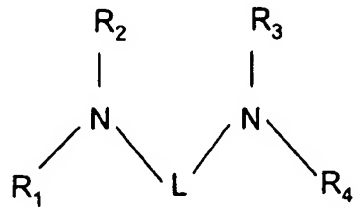
46) A process according to claim 40 wherein said aqueous composition is formed using between about 0.1 % and about 5 % by weight of said source of peroxide based on the total weight of said composition.

47) A process according to claim 40 wherein said surface comprises a surface selected from the group consisting of: medical instruments, medical devices, animal stalls, animal transportation equipment, a mold-infested surface, heating and air conditioning ducts, the interior surfaces of dwellings for human habituation, the interior surfaces of office buildings, open wounds and cuts, fruits, vegetables, meats, tank cars, military vehicles, aircraft, ships, boats, passenger cars, trains, and buses.

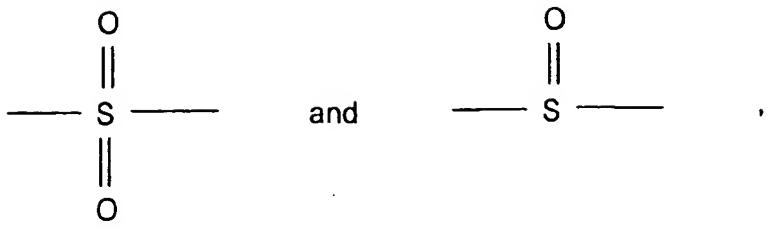
48) A process for volatilizing a peroxy acid which comprises mixing:

a) water;

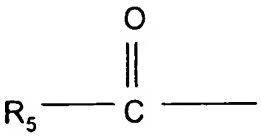
b) a composition of matter which comprises an amino compound having the structure:



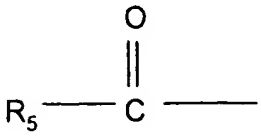
in which L is a divalent radical that is independently selected from the group consisting of:



and wherein R_1, R_2, R_3, and R_4 are each independently selected from the group consisting of: hydrogen, any C_1 to C_{20} hydrocarbyl group, and the group:



subject to the proviso that: at least one of R_1, R_2, R_3, and R_4 are the group:

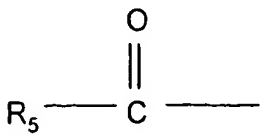


in which R_5 is in each occurrence independently hydrogen or any C_1 to C_{20} hydrocarbyl group; and

c) a source of peroxide,

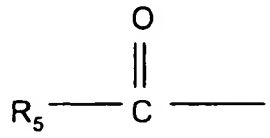
under conditions sufficient to enable evolution of vapors of peroxy acid from the aqueous solution so formed.

49) A process according to claim 48 wherein one and only one of R_1, R_2, R_3, and R_4 is the group:



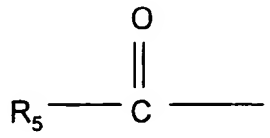
in which R_5 is independently hydrogen or any C_1 to C_{20} hydrocarbyl group.

50) A process according to claim 49 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



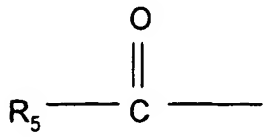
is hydrogen.

51) A process according to claim 49 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which are not the group:



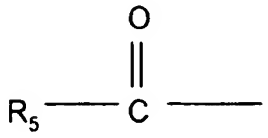
is independently in each occurrence any C_1 to C_{20} hydrocarbyl group.

52) A process according to claim 48 wherein any two of R_1, R_2, R_3, and R_4 are the group:



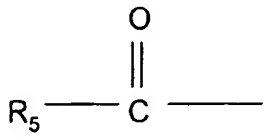
in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

53) A process according to claim 52 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which is not a group:



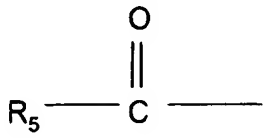
is hydrogen.

54) A process according to claim 52 wherein at least one of the groups of R_1, R_2, R_3, and R_4 which is not a group:



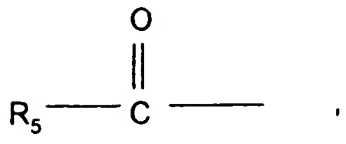
is independently in each occurrence any C_1 to C_{20} hydrocarbyl group.

55) A process according to claim 48 wherein any three of R_1, R_2, R_3, and R_4 are the group:



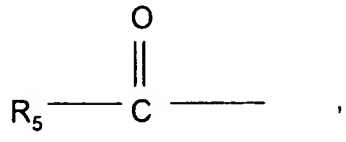
in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

56) A process according to claim 55 wherein the group of R_1, R_2, R_3, and R_4 which is not a group:



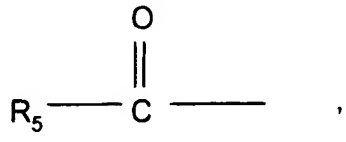
is hydrogen.

57) A process according to claim 55 wherein the group of R_1, R_2, R_3, and R_4 which is not a group:



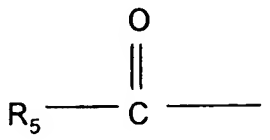
is any C_1 to C_{20} hydrocarbyl group.

58) A process according to claim 48 wherein all of R_1, R_2, R_3, and R_4 are the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group.

59) A process according to claim 48 wherein R_1 and R_4 are the group:



in which R_5 is independently in each occurrence hydrogen or any C_1 to C_{20} hydrocarbyl group, and wherein R_2 and R_3 are each independently selected from the group consisting of: hydrogen and any C_1 to C_{20} hydrocarbyl group.

60) A process according to claim 59 wherein R_5 in each occurrence is independently selected from the group consisting of: hydrogen, a methyl, an ethyl, a propyl, and a butyl group.

61) A process according to claim 48 wherein the concentration of peroxy acid in the atmosphere at the surface of said aqueous solution is at least about 0.1 grams/ m^3.

62) A process for disinfecting various microbes, including bacteria, molds, fungi and their spores which comprises contacting the vapor of peroxy acid generated according to claim 20 and in conjunction with a conventional means of vaporization selected from the group consisting of: heat, venturi nebulization, and sonication with at least one of said microbes.